

Date: Sat, 3 Sep 94 04:30:12 PDT  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V94 #293  
To: Ham-Ant

Ham-Ant Digest                      Sat, 3 Sep 94                      Volume 94 : Issue 293

Today's Topics:

AC House wiring used as antenna?  
CT:Power Handling of  
Matching 50 ohms to 2  
Secret's of the Collinear Vertical?

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 2 Sep 94 08:28:47  
From: ihnp4.ucsd.edu!news.cerf.net!nntp-server.caltech.edu!netline-  
fddi.jpl.nasa.gov!news.byu.edu!gatech!newsxfer.itd.umich.edu!news1.oakland.edu!  
rcsuna.gmr.com!rcsuna.gmr.com!vbreault@network.  
Subject: AC House wiring used as antenna?  
To: ham-ant@ucsd.edu

In article <343l6l\$g8i@sundog.tiac.net> rblaine@max.tiac.net (Russ Blaine) writes:

I have seen adapters that plug into an AC outlet in a house which use the  
houses's AC wiring as an antenna. Would this work? I am interested in  
this mainly for use on a CB, but I'm also interested in it for general  
scanner use. Any advice or comments appreciated.

I don't recommend it.

Some people spend a great deal of time and effort engineering antennas.  
The elements' length, spacing and their angular placement all contribute  
to the design goals. Those goals are usually to work well at the

frequency(ies) of interest and to reject other (noise) frequencies.

Household wiring is not installed with those goals in mind.

Furthermore, household wiring is the best place to receive electrical noise from your own and your neighbors' electrical appliances. Things like aquarium heaters, vacuum cleaners, light dimmers and other typical appliances make the electrical wiring a very noisy signal source.

I work part-time for Radio Shack.  
Radio Shack markets those adapters.  
I have refused to sell them.

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Val Breault - N80EF - vbreault@gmr.com \ /|  
Instrumentation dept GM NAO R&D Center \ / |  
My opinions are not necessarily those of \ /\_\_|  
GMR nor of the General Motors Corporation \ / |\_\_\_

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Date: Thu, 1 Sep 94 15:19:00 -0500  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!iat.holonet.net!cencore!  
forrest.gehrke@network.ucsd.edu  
Subject: CT:Power Handling of  
To: ham-ant@ucsd.edu

T0>: Precisely. The situation I was referring to, and the one Zack was  
T0>: discussing is one in which the loss per unit length is so high as  
T0>: to bring about melting of the insulation material. Assuming the

T0>?? That sure isn't the way I interpret it! If you soften  
T0>polyethelene, particularly if the length of line is being flexed,  
T0>or is under some stress from taking a sharp corner, then the center  
T0>conductor can move off-center. This can result in reflections  
T0>which contribute to further degradation. This is not necessarily a  
T0>catastrophic failure but can be a gradual one. Polyethelene does  
T0>not suddenly turn from solid to liquid at some temperature.

Melting, softening. What's the difference whether sudden or  
gradual? Cable whose central conductor has wandered off center  
is junk cable. I call that failure produced by operating  
it beyond its capability. My main point is that by the time  
you have stressed the cable to arrive at this condition,  
I believe you have certainly exceeded its \*temperature\*  
rating as a result of having exceeded its voltage rating.

BTW most polyethylene cables are rated at a top temperature of

80-85deg. C. This below the softening temperature.

T0>So why would it be unimportant to understand how to operate a  
T0>line to \_avoid\_ failures, either sudden or gradual? This only  
T0>convinces me the more that Zack's original question was a very  
T0>reasonable one.

To avoid failures operate below the manufacturer's maximum ratings.

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≥ SLMR 2.1a ≥ Any academic pursuit with "Science" in its name isn't one

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Date: Thu, 1 Sep 94 15:38:00 -0500  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!iat.holonet.net!cencore!  
forrest.gehrke@network.ucsd.edu  
Subject: Matching 50 ohms to 2  
To: ham-ant@ucsd.edu

MA>Another option is to use 50-ohm coax from each antenna to your switch  
MA>box, and then include the quarter-wave 75-ohm matching sections as  
MA>part of the switch box. When you are using them individually, you do  
MA>not use the 75-ohm sections. When you feed them both, go through the  
MA>75-ohm sections.

MA>As long as the antennae are 50 ohms, an arbitrary length of 50 ohm  
MA>coax will not affect the impedance matching properties of the 75 ohm  
MA>quarter-wave sections.

So long as the antennas are operated separately this is OK.  
All bets are off when operating them together if you calculate  
impedances as you have.

If the two antennas are in proximity of each other the effect  
of mutual impedance must now be considered. Now you get input  
impedances quite different from what you expect nor is it likely  
the phase difference will be the same as the electrical length  
of the interconnecting line.

--k2bt

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≥ SLMR 2.1a ≥ The paper is always strongest at the perforations.

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Date: Thu, 1 Sep 1994 17:31:44 GMT

From: news.cerf.net!gopher.sdsc.edu!nic-nac.CSU.net!charnel.ecst.csuchico.edu!  
yeshua.marcam.com!zip.eecs.umich.edu!newsxfer.itd.umich.edu!europa.eng.gtefsd.com!  
howland.reston.ans@ihnp4.ucsd.edu  
Subject: Secret's of the Collinear Vertical?  
To: ham-ant@ucsd.edu

Gene Wolford (genew@teleport.com) wrote:

: Secrets of the ultimate antenna?  
: (For uhf / vhf repeater use)

: Since everybody and their brother seems to be bragging about their super gain  
: Japanese dual band collinear antenna, I thought I'd read up on them.  
: Sadly, though they are incredibly popular, such designs don't appear in the  
: ARRL antenna book. (I wonder why?)

: Anyway, digging back, I found that there was an antenna called the  
: "Collinear-Coaxial vertical" in the 1974, 13th edition of the ARRL  
: antenna book, page 248. It's also referenced in the Oct. 1984 QST, page 39.  
: It is a multi-element, stacked half wave vertical with gain on the order of  
: that claimed by the Japanese verticals, single band only.

: Has anyone built this thing?  
: Why was it dropped from the Antenna Handbook?  
: Why isn't something updated in it's place?

I've built them for 2m and 440. I wrote up my notes and posted them here a couple months ago. If enough folk want them again, I'll post them; otherwise, I'd prefer to email them. The ARRL writeup makes some assumptions that aren't always valid and doesn't tell you much about just how the antenna works, so you don't know what to do if you want to use fewer or more sections or feed the antenna in the middle instead of the end (for a better pattern as frequency changes). The writeup I did tries to make things like that clearer, and explains what to do to use things like foam coax and gives an alternate matching method or two. The design is a single-band one; I think for homebrew for most hams, it's best to stick to that. The coaxial collinear is particularly cheap to build from readily available materials (mostly just coax, plus some method of support), and I think it would be much trickier if you must have it be dual-band with good gain on each band. In fact, my writeup should let you build one for lower bands like 10 or 15 meters: if you can hang about 60 feet of coax vertically and away from other conductors, it could give you 4 or 5 half-waves on 10 meters, not a bad omnidirectional antenna.

73, Tom -- K7ITM  
tomb@lsid.hp.com

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Date: Thu, 01 Sep 1994 18:32:48 -0400  
From: ftpbox!mothost!lmpsbbs!NewsWatcher!user@uunet.uu.net  
To: ham-ant@ucsd.edu

References <Pine.3.89.9408240648.A17522-0100000@netcom>,  
<Cv3rCE.A65@ncrcae.ColumbiaSC.NCR.COM>, <325@courts.UUCP>e  
Subject : Re: Lightning

In article <325@courts.UUCP>, ww@courts.UUCP (Warren Gay) wrote:

>  
> When I last moved, I put 110VAC relays in a power distribution box for  
> this purpose. The relay switches via heavy duty contacts, 3 lines -  
> 2 - 110VAC + 1 Neutral. This of course switches the 220VAC for my  
> linear (that I don't have yet) in the process. The relay was one of  
> two lucky finds at a ham-fest.

>  
It's a good thing that you are located in Canada, but not safe. Here in  
the USA you are not permitted to ever interrupt the neutral lead, since it  
is the grounded side (center, actually) of the feed.

> The relay is wired such that it latches itself on. You push one button  
> to activate the shack, and the relay holds itself on, as long as the  
> one live wire is alive (relay is tied to one side only). Push another,  
> and the relay drops out, and everything in the shack goes out. This  
> soothes the XYL, in case something starts smoking! Also convenient when  
> I go away for a while.

>  
> The feature I like about this the best is not the buttons. Its the fact  
> that when the hydro goes OFF on me, it STAYS OFF, until I get home and  
> reset it. This protects my computer and packet gear, if I should leave  
> it running that day. There is nothing worse than the power company  
> thumping the power on and off.

>  
> Finally, although I don't always do it, I do disconnect my antenna. But  
> with the relay setup, I can disconnect the shack from the lines with a  
> press of the button. If I forget, then the first little power glitch  
> will drop the self latching relay out.

>  
> The system is not perfect, but I must say that it works very well for  
> me. The hydro dropout feature has saved me on many occasions.

>  
> The current setup has a couple of draw backs however:

>  
> 1. if only the "other" line drops, then there is the chance  
> that the relay will stay holding. I doubt this happens



Date: 2 Sep 1994 14:55:49 GMT  
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!math.ohio-state.edu!jussieu.fr!  
univ-lyon1.fr!swidir.switch.ch!scsing.switch.ch!news.dfn.de!news.belwue.de!  
news.uni-stuttgart.de!deap1032@network.  
To: ham-ant@ucsd.edu

References <33l9l3\$1a2i@info2.rus.uni-stuttgart.de>,  
<33v088\$n56@bright.ecs.soton.ac.uk>, <CvHBCz.IFv@dmapub.dma.org>r  
Subject : Re: One-way propagation?

In article <CvHBCz.IFv@dmapub.dma.org>,  
Steve (Stephen) G. Miller <millersg@dmapub.dma.org> wrote:

>  
>Chapter 7.12.2 of Ionospheric Radio by Kenneth Davies states non-reciprocal  
>propagation on HF may occur because of the interaction between the magnetoionic  
>waves and the antennas.

>  
...I am sure there is a misprint, should read electromagnetic wave and not  
antenna. Anyway, Faraday rotation may cause strange fading effects, which could  
be non-reciprocal (the natural circulator). Giving the high frequency  
selectivity of fading, observation of such effects would require  
full bk operation and the exchange of accurate signal reports. May be just  
transmit the others stations s-readings... would be nice to try.

73, Moritz

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End of Ham-Ant Digest V94 #293

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